# Relationship of Hair and Eye Color with the Incidence of Pinkeye in Beef Cattle

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## Story in Brief

The effect of hair color around the eye and color of the sclera (white of eye) on the incidence of pinkeye was determined in Angus x Hereford cows (n=67). Fifty-one percent of the cows were treated for pinkeye and hair color around the eye did not significantly influence the incidence of pinkeye. More cows with white sclera were infected compared with cows with sclera that was darker or intermediate in color. The face hair color of the calves did not influence the incidence of pinkeye. Additional studies are needed to determine the influence of color of the sclera of the eye on clinical signs of pinkeye.

Key Words: Beef, Cattle, Pinkeye, Oxytetracycline

## Introduction

Pinkeye or infections bovine keratocunjunctivitis can reduce performance of beef cattle and in serious cases may result in blindness. Factors such as dust, irritation of the eye by weeds or grass, and flies increase the ability of the bacteria (Moraxella bovis) to enter the eye. Bright sun and reflection of light from around the eye of animals may influence the incidence of infection. Antibiotics are effective to reduce or eliminate pinkeye causing bacteria, and animals must be observed frequently and treated. The effect of hair color around the eye or color of the sclera (white of eye) on the incidence of pinkeye is not established. The purpose of this experiment was to determine if hair color around the eye and color of the sclera of the eye were related to the incidence of pinkeye in beef cattle.

## Materials and Methods

The incidence of pinkeye was much greater than normal during August and September of 2001, in a herd of cows at the Oklahoma State University Range Cow Research Center. Factors such as dust, numerous weeds in the pasture and numerous flies may have increased the infection rate. Mature Angus x Hereford multiparous cows (n=67) and calves were maintained in a single herd and rotated among several pastures. Cows and calves were observed daily. When animals had clinical signs of pinkeye (eye watered and was closed or cornea was cloudy), they were treated subcutaneously with oxytetracycline (Liquamycin, LA 200, Pfizer; 1 mL per 22 lbs of BW). If tearing and inflammation of the eye was not reduced within 3 d, animals were retreated. Animals were treated between August 20 and September 25, 2001.

After the eyes of animals had recovered and were normal, the color of the hair around the eyes of cows and calves, and the color of the sclera of cows were determined without knowledge of the previous infection status.

The color of the face of the animals varied from black to white. Animals were classified as black hair if the face hair was black. Animals with black hair for only about one inch around the eyes and mostly white on the face were classified as black and white. White faced cows had white hair around the eyes. If the sclera of the eyes was white the cow was classified as white. If the sclera was brown or black it was classified as dark. If the sclera had dark and white areas it was classified as intermediate.

Effect of hair color around the eyes of cows and calves and color of the sclera of cows on the incidence of inflammation due to pinkeye causing bacteria and severity (number of times animals were treated) were determined by analyses of variance.

## Results and Discussion

Fifty-one percent of the cows were treated for pinkeye (Table 1). Hair color around the eye did not significantly influence the incidence of pinkeye. The necessity to retreat cows was not significantly influenced by face hair color. The color of the eye sclera (white of eye) was related to the incidence of pinkeye (Table 2). More cows with white sclera ($P<0.05$) were infected compared with cows with sclera that was dark or intermediate in color. In this herd of cows, about half of the cows recovered from pinkeye after only one treatment with antibiotics, and a second or third treatment was required for about half of the infected cows. All cows recovered from the disease within 4 to 6 wk after treatment without permanent blindness.

The steer and heifer calves were sired by Angus bulls so a greater percentage of the calves had black face hair compared with the cows. Only 44% of the calves were treated for pinkeye (Tables 3 and 4). Similar to the effect of face hair color in cows, the color of hair did not significantly influence the incidence of pinkeye of calves. The smaller percentage of calves with white faces did not allow a rigorous test of the effect of hair color on incidence of infection. Unfortunately the color of the sclera was not evaluated in calves.

Color of the face hair did not influence the incidence of pinkeye or the number of treatments with oxytetracycline necessary to alleviate the disease when this cow herd was exposed to dry, dusty conditions with abundant weeds, tall grass and flies. Although cows with white sclera of the eye had a greater pinkeye inflammation rate than cows with dark or intermediate colored sclera, additional numbers of animals must be studied to determine if the incidence of infection is less in cows with dark colored sclera.

## Implications

The incidence of pinkeye in cows and calves is not influenced by the color of hair around the eye when cows are exposed to dusty, weedy, tall pastures with abundant flies. Treatment of infected cows with oxytetracycline eliminated inflammation and prevented permanent blindness in infected animals. Management practices such as weed elimination and fly control should decrease the incidence and spread of the disease.

**Table 1. Relationship between hair color around the eyes with the incidence of severity of pinkeye in crossbred cows**

| Hair color | Number of cows | Number of antibiotic treatments | | | |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 |
| Black | 24 | 58[a] | 25 | 17 | 0 |
| Black and white | 21 | 38 | 23 | 28 | 10 |
| White | 22 | 50 | 18 | 18 | 14 |

[a]Percentage of cows.

Black = Black hair on face around eyes.

Black and white = Black hair for at least one inch around body eyes.

White = White hair around the eyes.


**Table 2. Relationship between eye sclera color (white of eye) with the incidence and severity of pinkeye**

| Sclera color | Number of cows | Number of antibiotic treatments | | | |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 |
| Dark | 14 | 64[ab] | 22 | 14 | 0 |
| Intermediate | 5 | 80[b] | 0 | 20 | 0 |
| White | 46 | 41[c] | 28 | 20 | 11 |

[a]Percentage of cows.

[b,c]Means in a column differ (P<0.05).


**Table 3. Relationship between hair around the eyes with the incidence and severity of pinkeye in crossbred suckling steers**

| Hair color | Number of steers | Number of antibiotic treatments | | | |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 |
| Black | 13 | 54[a] | 23 | 23 | 0 |
| Black and white | 11 | 100 | 0 | 0 | 0 |
| White | 2 | 0 | 50 | 0 | 50 |

[a]Percentage of steers.


**Table 4. Relationship between hair around the eyes with the incidence and severity of pinkeye in crossbred suckling heifers**

| Hair color | Number of heifers | Number of antibiotic treatments | | | |
|---|---|---|---|---|---|
| | | 0 | 1 | 2 | 3 |
| Black | 16 | 63[a] | 25 | 6 | 6 |
| Black and white | 16 | 38 | 38 | 12 | 12 |
| White | 3 | 0 | 67 | 33 | 0 |

ªPercentage of heifers.

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